Vermont Mental Health Performance Indicator Project

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MEMORANDUM

TO: Vermont Mental Health Performance Indicator Project
Advisory Group and Interested Parties

FROM: John Pandiani
Sheila Pomeroy

DATE: February 7, 2003

RE: Medication and Employment of CRT Clients

Earlier this year, we distributed the results of our examination of the relationship between employment services and employment rates for clients of Vermont's CRT programs for adults with serious mental illness (www.state.vt.us/dmh/Data/PIPs/2003/pip011003.pdf). That analysis indicated a clear and positive relationship between employment services and employment rates. This week's PIP continues our investigation into the relationship between services and employment by examining the relationship between the use of anti-psychotic medication and employment rates for adult Medicaid clients of Vermont's CRT programs.

As in the previous analysis, our measure of employment is based on the integration of data from local CRT programs with data from the Vermont Department of Employment and Training (DET). Our measure of employment includes all employment reported to DET in conformance with state and federal unemployment compensation laws. The methodology for linking these data sets is described in more detail in our PIP dated October 12, 2001 (www.state.vt.us/dmh/Data/PIPs/2001/pip101201.pdf).

Information on the use of atypical and traditional anti-psychotic medication during July 1997 through December 2000 was obtained from the Vermont Medicaid paid claims database. These data were aggregated to the person and calendar quarter level, and linked to the employment data sets for the same time period. For purposes of this analysis, individuals were categorized as "going on" anti-psychotic medication during a year if they did not receive medication during two consecutive quarters but did receive medication during both of the following two quarters. Individuals were categorized as "staying on" anti-psychotic medication if they received medication during four consecutive quarters. Individuals were categorized as "going off" anti-psychotic medication if they received medication during two consecutive quarters but did not receive medication during either of the following two quarters. Finally, individuals were categorized as "staying off" anti-psychotic medication if they did not receive medication during any of four consecutive quarters. Individuals were placed in one of these four categories for each study year for both traditional and atypical anti-psychotic medications. (A list of specific medications included in this analysis is provided below.)

Three distinct approaches to measuring differences in employment rates (our dependent variable) were used in this analysis. Each is appropriate to a different conceptualization of the research methodology.

- Our first approach to measuring differences treats any difference as a real difference. This approach is appropriate because this project involved direct linkage of administrative databases. Since no statistical inference was involved, any difference in employment rates is a real difference.

- Our second approach is sensitive to our concern about the magnitude of the differences in employment rates. We measured magnitude of differences based on "effect size" (the employment rate for the second period divided by the employment rate for the first period. Following NAME (citation), an effect size greater than 1.2 or less than 0.8 is considered to represent a substantial change in employment.

- Our third approach involves a traditional test of statistical significance based on sampling theory. This test was applied to the current findings, even though no sampling was involved, on the theory that this project examined a sample of all possible recipients of anti-psychotic medication in some larger universe (the United States, the world, or the last decade, for example).

Since this project is designed to increase our knowledge of the relationship between employment and anti-psychotic medication, not to test a pre-existing hypothesis about the efficacy of anti-psychotic medication, each of these approaches has the potential to add to our understanding. The results of these three tests for change in employment status for each of 16 combinations of traditional and atypical anti-psychotic medications are presented graphically on the first attached page. Detailed data and statistics are provided on the table that follows.

When we consider any change in employment rate, 9 of the 16 possible combinations of medications were associated with increased employment. Two were associated with no change in employment, and five were associated with decreased employment.

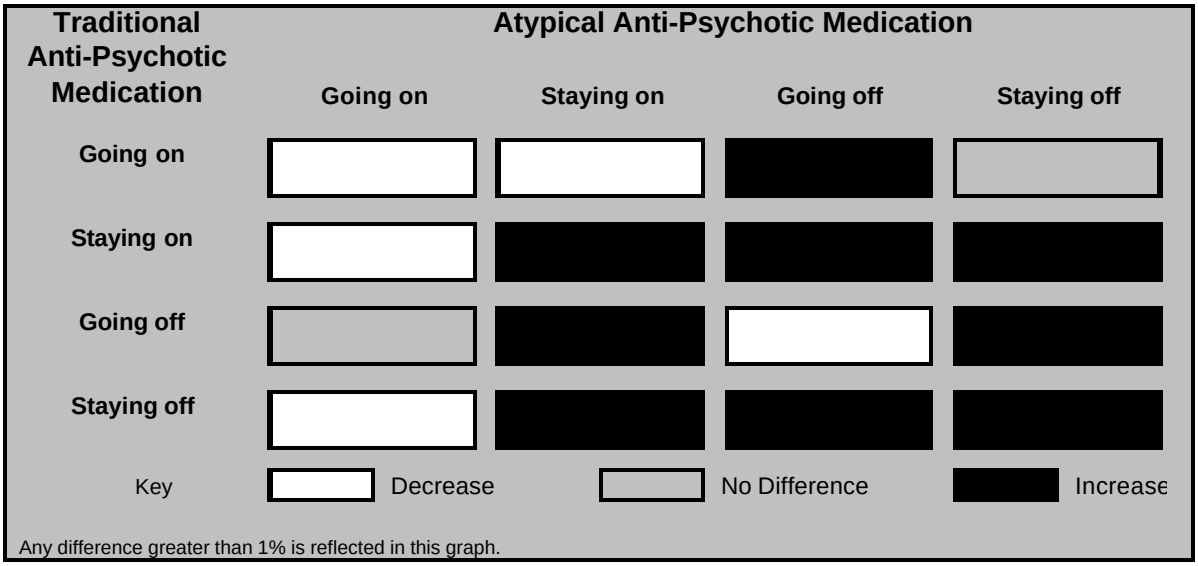
When we consider only changes in employment rate of greater than 20%, only three combinations of traditional and atypical medication were associated with increased employment. All three combinations included "going off" atypical medication. Increased employment was associated with going off atypical medication in conjunction with going on traditional medication, staying on tradition medications, and staying off traditional medications.

It is interesting to note that the only combination of medications associated with a statistically significant increase in employment (staying off atypical anti-psychotic medications and staying on traditional anti-psychotic medications) did not involve a "substantial" change in employment. In this case, statistical significance was a function of the large number of observations in this cell (6,912) rather than the magnitude of the effect.

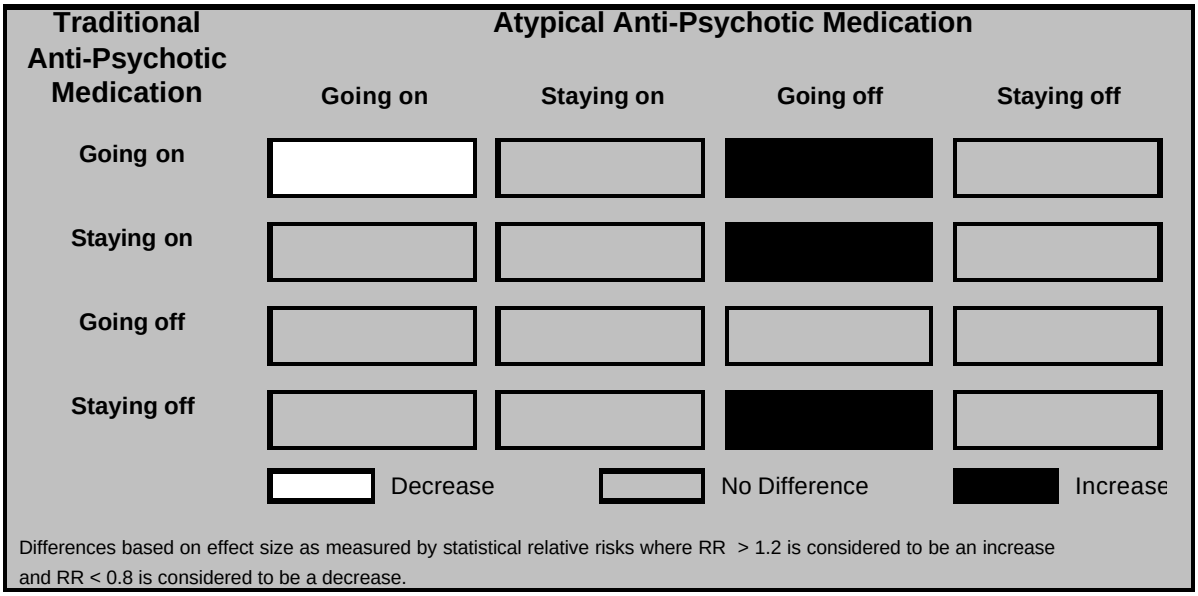
We look forward to your interpretation of these findings, your suggestions for further analyses, and your suggestions for other factors that may be related to employment outcomes. As always, we will welcome your comments and suggestions at pip@ddmhs.state.vt.us or 802-241-2638.

NOTES: In this analysis traditional anti-psychotic medications included *Chlorpromazine/Thorazine, Mesoridazine/Serentil, Trifluoperazine/Stelazine, Fluphenazine/Permitil/Prolixin, Molindone/Lidone/Moban, Thioridazine/Mellaril, Haloperidol/Haldol/Halperon, Perphenazine/Etrafon/Trilafon, Thiothixene/Navane, and Loxapine/Loxitane; Pimozide/Orap'*; atypical anti-psychotic medications included *Clozapine/Clozaril, Risperidone/Risperdal, Olanzapine/Zyprexa, and Quetiapine/Seroquel.*

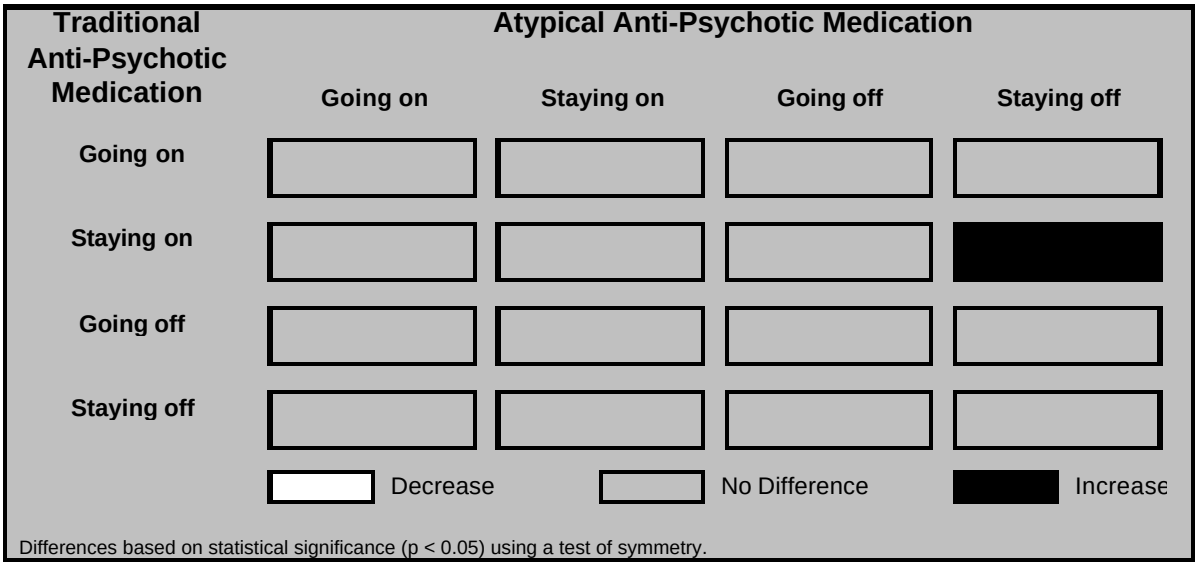
Change in Employment Rate
Medicaid CRT Clients With Selected Medication Combinations
Vermont: July 1997 - December 2000



Any difference greater than 1% is reflected in this graph.



Differences based on effect size as measured by statistical relative risks where RR > 1.2 is considered to be an increase and RR < 0.8 is considered to be a decrease.



Differences based on statistical significance ($p < 0.05$) using a test of symmetry.

Employment Rate
Medicaid CRT Clients With Selected Medication Combinations
Vermont: July 1997 - December 2000

Traditional Anti-Psychotic Medication	Atypical Anti-Psychotic Medication							
	Going on		Staying on		Going off		Staying off	
	Before	After	Before	After	Before	After	Before	After
Going on	18%	14%	17%	16%	14%	32%	27%	27%
	(N=244)		(N=408)		(N=22)		(N=1,868)	
Staying on	14%	12%	13%	14%	17%	21%	17%	18%
	(N=332)		(N=4,932)		(N=274)		(N=6,912)	
Going off	8%	8%	13%	15%	20%	18%	24%	27%
	(N=26)		(N=394)		(N=112)		(N=1,544)	
Staying off	26%	24%	21%	23%	21%	29%	29%	30%
	(N=112)		(N=1,268)		(N=72)		(N=5,628)	